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Valid to: 1/2/20212

BUSHFIRE HAZARD ASSESSMENT

FOR PROPOSED DUAL OCCUPANCY

64 - 70 CLARK ROAD, LONDONDERRY

LGA: Penrith

Lot 2 DP 512998

Applicant: Matthew Teuma

HARRIS ENVIRONMENTAL CONSULTING

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Version Control

Proposal	Proposed dual occupancy			
Site Address	64 - 70 Clark Road, Londonderry, Lot 2 DP 512998			
Prepared By	Jacob Mierendorff – B.Sc. (PGEG).			
Approved By:	Katherine Harris – BPAD Lvl 3			
Date Created	18/01/2021			
Version Number	Modified By	Modifications Made	Date Modified	Status
1.0	JM	Infill Report	1/2/2021	Complete

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DISCLAIMER

The recommendations provided in the summary of this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report however there is no guarantee of human error. The intention of this report is to address the submission requirements for Development Applications on bushfire prone land. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent and there is no way Harris Environmental Consulting is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent. This bushfire assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event.

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TABLES

EXECUTIVE SUMMARY

This report provides a Bushfire Hazard Assessment for a proposed replacement Primary Dwelling and a new secondary dwelling at 64 - 70 Clark Road, Londonderry on Lot 2 DP 512998.

The assessment confirms the subject lot is identified as bushfire prone.

Kate Harris visited the site and can confirm that no vegetation is required to be further managed to meet the APZ standard and that the proposed dual occupancy can meet BAL 12.5 as specified by AS3959; 2018 Construction for Buildings in Bushfire Prone Areas.

The main bushfire threat to the proposed development as Downslope 0-5° Forest located 54 m to the south.

The nearest hydrant location is located on Clark Road, 43 m away from the proposed development.

Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used. Electrical transmission lines, if above ground, will be managed in accordance with specifications issued by Energy Australia.

Any above ground electrical transmission lines should be regularly inspected to ensure no branches are within proximity of it.

If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheather flexible gas supply lines to gas meters adjacent to buildings are not to be used.

FIGURES

APPENDIX

PROPOSAL

The owners of 64 - 70 Clark Road, Londonderry, propose dual occupancy on Lot 2 DP 512998. The existing dwelling on the subject lot is proposed to be removed.

Harris Environmental Consulting was commissioned to provide this bushfire assessment.

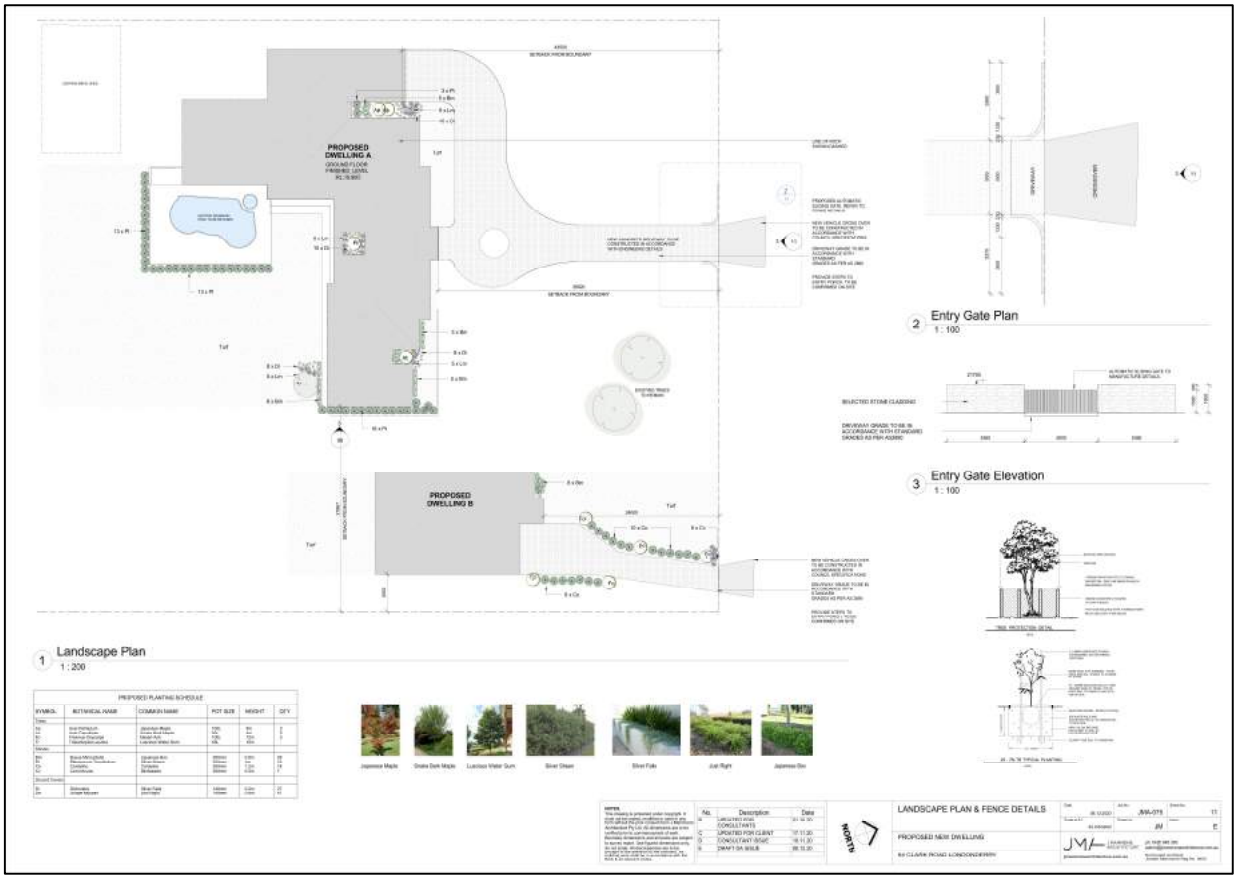
Figure 1 shows the subject lot location.
Figure 2 provides a broad scale aerial view of the subject site.
Figure 3 shows a close up view of the subject lot.
Figure 4 shows the proposed plans.

FIGURE 1 SITE LOCATION

FIGURE 2 BROADSCALE AERIAL VIEW OF THE SUBJECT SITE

FIGURE 3 CLOSE UP VIEW OF SUBJECT LOT

FIGURE 4 PROPOSED PLANS



PLANNING LAYERS

The following planning layers are described in Table 1 and shown in the Figures below:

TABLE 1 PLANNING LAYERS

MAP	FIGURE	DESCRIPTION
Bushfire Prone Land Map	5	The subject lot is mapped as “Vegetation Category 2”.
LEP Zone Map	6	The subject lot is zoned as “RU4 Primary Production Small Lots”.
Vegetation Mapping	7	The vegetation surrounding the development site has been identified as “Cumberland Dry Sclerophyll Forest” (Tozer et al 2010).

FIGURE 5 BUSHFIRE PRONE MAP

NSW Bushfire Prone Land Map

FIGURE 6 LEP ZONE MAP

NSW Environmental Planning Instrument - Land Zoning

FIGURE 7 VEGETATION MAPPING

CumberlandPlainWest_2013_E_4207

SITE DESCRIPTION

1.1. Slope and aspect of the site within 100 m

The slope that would most significantly influence fire behavior was determined over a distance of 100m out from the proposed residence. This assessment was made using 2 metre contour intervals.

The Australian Standard AS3959-2018 identifies that the slope of the land under the classified vegetation is much more important than the slope between the site and the edge of the classified vegetation.

As can be seen in Figure 8 the subject lot slopes downwards on the southern elevation.

FIGURE 8 SLOPE

1.2. Vegetation formation within 140 m of proposed development

Figure 9 shows the managed and unmanaged land within 140 m of the proposed development.

The vegetation formations are described below and summarised in Table 2.

The vegetation surrounding the subject lot is classified as "Cumberland Dry Sclerophyll Forest" ((Tozer et al 2010). According to Keith (2004), and in accordance with the *Planning for Bushfire Protection 2019* this formation has been classified as "Forest".

Photo 1 shows a view of the north east elevation on the other side of Clark Road to the subject lot. Photo 2 and 3 shows how the trees within the garden on the south-east and south-west are part of the garden.

TABLE 2 PREDOMINATE VEGETATION CLASSIFICATION

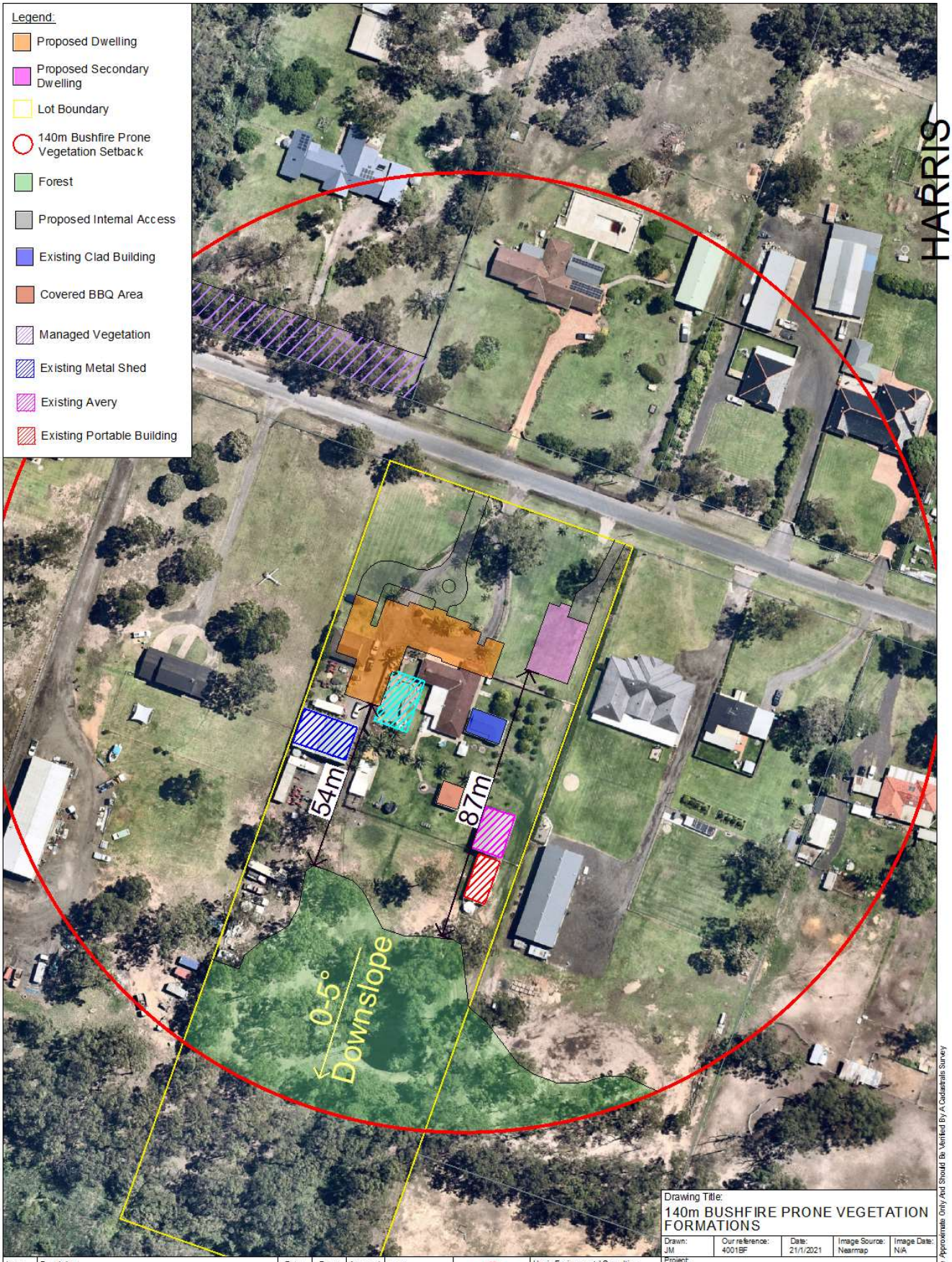
	Vegetation Formation	Effective Slope	Distance from Primary Dwelling to hazard	Distance from Secondary Dwelling to hazard
North	Managed	-	>140 m	>140 m
East	Managed	-	>140 m	>140 m
South	Forest	0-5° Downslope	54 m	87 m
West	Managed	-	>140 m	>140 m

Photo 1 View of the opposite side of Clark road and the subject lot showing how the trees are managed

Photo 2 View looking towards the south-east and the trees that will not require any further management

Photo 3 View looking towards the south-west and the trees that will not require any further management

FIGURE 9 BUSHFIRE PRONE VEGETATION WITHIN 140M OF PROPOSED PRIMARY DWELLING



Issue:	Description:	Date	Drawn	Approved
A	Issue for client review	21/01/21	JM	KH

North

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Wastewater | Bushfire | Stormwater

Drawing Title:
140m BUSHFIRE PRONE VEGETATION FORMATIONS

Drawn:	Our reference:	Date:	Image Source:	Image Date:
JM	4001BF	21/1/2021	Nearmap	N/A

Project:
PROPOSED INFILL
64 - 70 CLARK ROAD
LOT 2 DP 512998
LONDONDERRY, NSW
LGA: PENRITH

Boundary Positions Are Approximate Only And Should Be Verified By A Cadastrals Survey

BUSHFIRE THREAT ASSESSMENT

4.1. Asset Protection Zones (APZ)

PBP 2019 Table A1.12.5 has been used to determine the width of the required APZ for the proposed development using the vegetation and slope data identified. An FDI of 100 was used for this location.

Table 3 below shows the APZ and BAL Determination for the proposed development.

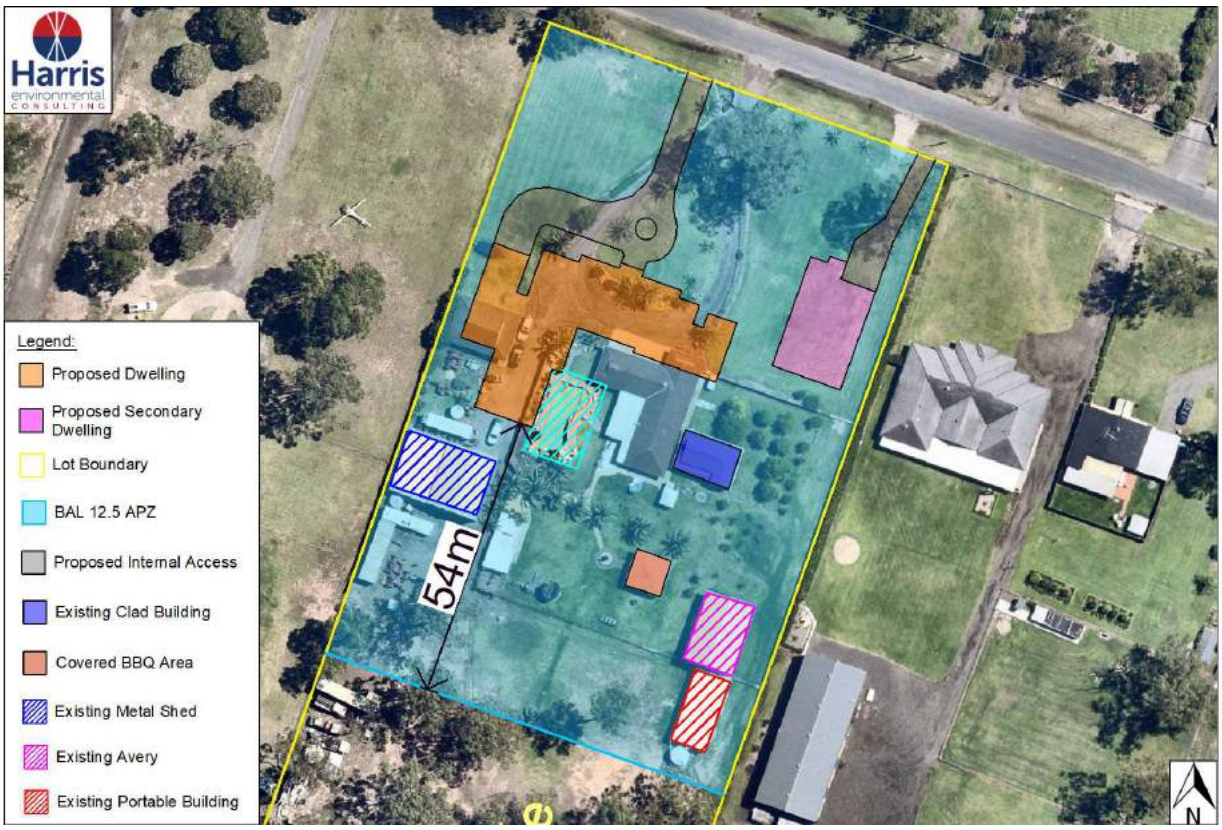
The APZ should be maintained for perpetuity for the following distances as shown in Figure 10.

- To the boundary on the northern, eastern, and western elevations;
- 54 m on the southern elevation.

TABLE 3 APZ AND BAL DETERMINATION

	NORTH	***EAST***	***SOUTH***	***WEST***
Vegetation	Managed	Managed	Forest	Managed
Gradient			0-5° Downslope	
Distance between Primary Dwelling and hazard	>140 m	>140 m	54 m	>140 m
Distance between Secondary Dwelling and hazard	>140 m	>140 m	87 m	>140 m
BAL 12.5 required APZ			> 54 m	
Primary Dwelling BAL Required	**BAL 12.5**	**BAL 12.5**	**BAL 12.5**	**BAL 12.5**
Secondary Dwelling BAL Required	**BAL 12.5**	**BAL 12.5**	**BAL 12.5**	**BAL 12.5**

FIGURE 10 ASSET PROTECTION ZONE FOR PROPOSED DEVELOPMENT



4.2. Relevant Construction Standard

The Australian Standard AS 3959 – 2018 is the enabling standard that addresses the performance requirements of both parts 2.3.4 and Part GF5.1 of the Building Code of Australia for the construction of the Class 1, 2 and Class 3 buildings within a designated Bushfire Prone Area.

The following was determined for this site:

Relevant fire danger index..... FDI 100

Flame temperature .....1090 K

The proposed dual occupancy can be constructed to **BAL 12.5**.

4.3. Safe Operational Access

The PBP (2019) requires the provision of safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

The subject lot is located on Clark Road. This is a two-wheel drive, all weather road. The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles. This is shown in Figure 11.

FIGURE 11 EXISTING AND PROPOSED INTERNAL ACCESS

4.4. Emergency Management

The owners are advised to obtain the *NSW Rural Fire Service – "Guidelines for the Preparation of Bush Fire Evacuation Plans"* & *'Bush Fire Survival Plan'* In the event of emergency, the owners should ensure they are familiar with the RFS Bush Fire Alert Levels and use their Bush Fire Survival Plan.

4.5. Adequate Water and Utility Services

The nearest hydrant location is located on Clark Road, 43 m away from the proposed development.

Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used**.**

Electrical transmission lines, if above ground, will be managed in accordance with specifications issued by Energy Australia.

LANDSCAPING

The APZ is required to be maintained for perpetuity, and no vegetation is needed to be cleared.

When landscaping, vegetation should be located greater than 2 m from any part of the roofline of a dwelling or the shed. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 1 m from an exposed window or door. Trees should have lower limbs removed up to a height of 2 m above the ground.

Appendix 4 (PBP, 2019) provides guidelines for landscaping and Bushfire Provisions within the APZ. To incorporate bushfire protection measures into future development, the owner is advised to consider the following:

- Avoid planting trees species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopy.
- Avoid planting deciduous species that may increase fuel at surface/ground level by the fall of leaves.
- Avoid climbing species to walls and pergolas.
- Locate combustible materials such as woodchips/mulch, flammable fuel stores (LPG gas bottles) away from the building.
- Locate combustible structures such as garden sheds, pergolas and materials such as timber furniture away from the building.
- Ensure any vegetation planted around the house is a suitable distance away so these plants do not come into physical contact with the house as they mature.
- The property should be developed to incorporate suitable impervious area surrounding the house, including courtyards, paths and driveways.

SUMMARY

- The proposed dual occupancy can meet BAL 12.5 as specified by AS3959 - 2018 Construction for Buildings in Bushfire Prone Areas.

- The APZ is existing, and no further management of vegetation is required.

- The nearest hydrant location is located on Clark Road, 43 m away from the proposed development.

- Any bottled gas will be installed and maintained in accordance with AS1596 and the requirements of the relevant authority. If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used. Electrical transmission lines, if above ground, will be managed in accordance with specifications issued by Energy Australia.

- Any above ground electrical transmission lines should be regularly inspected to ensure no branches are within proximity of it.

- If gas cylinders need to be kept close to the buildings, the release valves must be directed away from the building and away from any combustible material. Polymer sheather flexible gas supply lines to gas meters adjacent to buildings are not to be used.

REFERENCES

Dr Douglas, S, Ecological Surveys & Planning (2018). *Re: ecological issues in relation to proposed dwelling, 'Cranleigh Park', 41 Woodlands Road Woodlands.*

Geoscience Australia. *ELVIS - Elevation - Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: http://elevation.fsdf.org.au/

Keith, D. (2004) "*Ocean Shores to Desert Dunes*" Department of Environment and Conservation, Sydney

NSW Department of Planning and Environment (2020). Planning Portal. Accessed at: https://www.planningportal.nsw.gov.au/

NSW Office of Environment and Heritage (2020). Biodiversity Value Map. Accessed at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap

NSW Rural Fire Service (2019) *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. November 2019.

Standards Australia (2018) *AS3959, Construction of buildings in bushfire-prone areas.*

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S 2010. *Native Vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands.* Cunninghania 11:359-406.

APPENDIX I DEFINITION OF ASSET PROTECTION ZONES

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1) Discontinuous shrub layer (clumps or islands of shrubs not rows);

2) Vertical separation between vegetation stratums;

3) Tree canopies not overhanging structures;

4) Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in “Vegetation Safety Clearances” issued by Energy Australia (NS179, April 2002);

5) Maintain low ground covers by mowing / whipper snipper / slashing; and

6) Noncombustible mulch e.g. stones and removing stores of combustible materials;

7) Vegetation to be planted should consist of fire retardant/ less flammable species strategically located to reduce attack from embers (i.e. as ember traps when in small clumps and short wind breaks).